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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/674,498	10/01/2003	Takayuki Suga	03560.003361.	4225
5514 7590 07/08/2009 FITZPATRICK CELLA HARPER & SCINTO 30 ROCKEFELLER PLAZA NEW YORK, NY 10112				
EXAMINER				
SARPONG, AKWASI				
ART UNIT		PAPER NUMBER		
2625				
MAIL DATE		DELIVERY MODE		
07/08/2009		PAPER		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/674,498

Applicant(s)

SUGA ET AL.

Examiner

AKWASI M. SARPONG

Art Unit

2625

Period for Reply -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 March 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-22 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10/01/2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-8508)
- Paper No(s)/Mail Date 10/01/2003
- 4) ☐ Interview Summary (PTO-413)
- Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 03/26/2009 has been entered.

Claim Rejections - 35 USC § 112

1. Claims 1, 14, 15 and 22 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The applicant claimed in the above mentioned claims the limitation "a protubearance being disposed... and "wherein the protubearance of said mirror....." However did not explain in both his specification and drawings what he is referring to as protubearance if it is a sensor or a mirror or just an object that projects a signal.
2. Claims 1-13 are also rejected under 35 U.S.C. 112, first paragraph because they depend on Claim 1.

3. Claims 16-21 are rejected under 35 U S C 112, first paragraph because they depend on Claim 14.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claims 1-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mou (6216952) in view of Aikawa (5844730).

Claim 1, Mou discloses an image reading apparatus (**Fig. 2 el. 2 shows a scanner**) for reading an image of a document (**Col. 2 Lines 48-52- thus the casing is located in the scanner 2 which scans images put on glass window 21**) comprising:

an image reading unit (**Fig. 2 El. 22 or Carriage 22**) configured to read image of the document. (**Col. 2 lines 53-60- thus the casing which contains the light source reads the image by passing light through the image**).

an illuminating unit (**Light source 222 shown in Fig. 2**) for illuminating the document (**Column 2 Lines 49-56 – thus the light source produces light which passes through the image**).

a plurality of mirrors (**Fig. 2 El. 223, 224, 225 and 226**) configured to reflect light from the document (**Col. 2 Lines 54-65- thus these mirrors are made to reflect the lights from the document**) and

a housing (**Casing 221 shown in fig. 2**) configured to support the plurality of mirrors, said housing including a mirror supporting part (**Col. 3 Lines 8-15, Fig. 2 El. 221-thus the casing is put in place to support the mirrors and therefore the casing (housing) has a supporting part that hold both the mirror and the casing or housing together**) wherein at least one of the plurality of mirrors comprises:

a surface (**Casing 221 shown in Fig. 2- thus as it is clearly shown in Fig. 2 the mirrors and the casing a made together and therefore forms part of the mirrors and the casing is not a mirror and hence can be a surface**)

a reflecting mirror surface, (**Fig. 2 mirror 224**) opposite from the non-mirror surface- (**Fig. 2 shows clearly that the part of the casing that hold both mirror 223 and 226 together is opposite to Mirror 224**)

and two contact portions, (**Fig. 5, El. 2291 and 2292**) disposed on a side of the mirror on which the reflecting mirror surface is provided. (**Col. 3 lines 27-32- thus the hooks and the recesses hold mirror 223 in place by holding the mirror in both sides**)

and contacting the mirror supporting part of the housing, (**Col. 3 lines 20-25- thus the mirror is engaged into the hooks and the recess 2291 and 2292 respectively and therefore it is contacting and supporting the mirror**)

configured and positioned to determine the position of the reflecting surface in a direction normal to the surface thereof when the two contact portions contact the mirror supporting part of the housing. (**fig. 2 shows clearly that as carriage 22 moves to**

scan the document mirror 223 receives light from the image document which is in normal direction to the paper 23)

NB: Col. 2 lines 48-67- thus the light reflected from the document is normal to the first mirror which is mirror 223 and according to fig. 5 mirror 223 is engaged in hooks 2292 and recesses 2291.

Mou does not disclose a curved reflecting surface.

Aikawa disclose a curved reflecting surface (**Col. 6 Lines 1-9 and lines 31-41 Fig. 8C - thus the mirrors are hold in position by base plate 75 as taught by Aikawa in Col. 6 Lines 25-34)** and a protuberance (**Fig. 10 shows clearly that all the mirrors (73e, 73d, 73a, 75a, 75 when together bend outwardly and therefore forms a protuberance)** being disposed at a position corresponding to a reference axis of the curved reflecting mirror surface (**Col. 7 lines 55-67- thus since the toric mirror 91 which form a bend shape also creates or forms a reference axis)** wherein the protuberance of said mirror is inserted in a concave portion of the housing. (**Fig. 10 shows that mirrors 73a-c forms a concave portion within the housing)**

Since Aikawa teaches a plurality of curved mirrors used as reflective surface for optical purpose and therefore it will be obvious to one ordinary skilled in the art at the time the invention was made to modify Mou scanning structure to include a curved reflective surface so that the light obtained will be uniform as disclosed by Aikawa in Col. 3 Lines 30-32 and also the modification of Mou's scanning device to include Aikawa's 73 a-e mirrors will improve the readings of the scanning and thus the scanner will output a better image.

Claim 2, Mou (Fig.2 Element 22) in view of Aikawa discloses an image reading apparatus, **(Mou; Fig. 2 el. 2 shows a scanner)** wherein the contact portions provided on the at least one of the mirrors have a flat portion. **(Mou: Col. 3 lines 27-32- thus the hooks and the recesses hold mirror 223 in place by holding the mirror in both sides).**

Claim 3, Mou in view of Aikawa discloses an image reading apparatus wherein the curved reflecting surface and the contact portions of the mirrors are formed integrally. **(Mou: Fig. 2 Element 2 shows a scanner 2) and (Aikawa: Col. 6 lines 35-40- thus the mirrors are curved and supported by some screws and nuts)**

Claim 4, Mou in view of Aikawa discloses an image reading apparatus wherein the at least one of the mirror comprises longitudinal position determining parts and lateral position determining parts for respectively and independently determining a longitudinal direction position and a lateral direction position. **(Mou: Fig. 2 shows a scanner that reads an image) and (Aikawa: Column 6 Lines1-4 Fig. 8A and 8B-R1 and R2 determine the longitudinal and lateral parts).**

Claim 5, Mou in view of Aikawa discloses an image reading apparatus wherein either the longitudinal position determining parts or the lateral direction position determining parts provided on the at least one of the mirrors are formed on flat parts.

(Mou: Mirror 223 is positioned in a longitude position) and (Aikawa: Column 6 Lines 6-8)

Claim 6, “wherein the longitudinal position determining parts and the lateral position determining parts provided on the at least one of the mirrors determine the position of a reference axis of the off-axis reflecting surface of the at least one of the mirrors,” reads on **Aikawa’s Fig. 10 as you can tell the angle between X and Y.**

Claim 7, **Mou (Fig. 2)** in view of Aikawa discloses wherein the curved reflecting surface, and the longitudinal position determining parts and the lateral position determining parts are formed integrally for the at least one of the mirrors. **(Mou: Mirror 223 is positioned in a longitude position) and (Aikawa: Column 6 Lines 6-8- thus the vertical and horizontal direction of the mirrors makes up the longitude direction).**

Claim 8, **Mou** in view of Aikawa discloses wherein the housing comprises respective engaging parts with which the longitudinal position determining parts and the lateral position determining parts of the at least one of the mirrors engage, **(Mou: Col. 3 lines 20-25- thus the mirror is engaged into the hooks and the recess 2291 and 2292 respectively and therefore it is contacting and supporting the mirror)**

and when the engaging parts, and the longitudinal position determining parts and the lateral position determining parts engage with each other, each portion of the engaging parts can slide in a direction orthogonal to a position determining direction, thereby allowing thermal expansion of the at least one of the mirrors. **(Mou: fig. 2**

shows clearly that as carriage 22 moves to scan the document mirror 223 receives light from the image document which is in normal direction to the paper 23)

Claim 9,” a spring configured and positioned to press the two contact portions against the housing to determine the position of the curved reflecting surface” reads on Aikawa’s means of adhering the reflecting mirrors to the flat base as disclosed in Col. 6 Lines 35-40.

Claim 10, Mou in view of Aikawa discloses wherein the plurality of mirrors, each of which comprising the curved reflecting surface **(Mou: Col. 6 lines 25-40, Fig. 10 shows clearly that the whole mirrors are curved)** and the two contact portions, **(Mou :Col. 3 lines 27-32- thus the hooks and the recesses hold mirror 223 in place by holding the mirror in both sides)** is configured to form the image of the document onto the image reading unit, and a reference-axis ray has a different incident direction and reflected direction with the curved reflecting surface **(Aikawa inherently teaches that incident and the reflected are different from the curved surface as taught by Col. 6 Lines 48-55) .**

Claim 11, Mou in view of Aikawa discloses a scanning unit configured to move the housing to perform scanning of the image of the document, wherein the housing further supports the image reading unit and the illumination unit. **(Mou: Col. 2 lines 35-55-thus the scanning unit is moved by the power of the motor)**

Claim 12, Mou in view of Aikawa discloses wherein the two contact portions are adjacent to the curved reflecting surface. **(Mou: Col. 3 lines 20-25- thus the mirrors are engaged into the hooks and the recess 2291 and 2292 respectively and therefore it is contacting and supporting the mirror) and (Aikawa: Col.6 Lines 1-10, Fig. 7 shows clearly that the curved reflecting mirrors are in between the supporting structures).**

Claim 13, Mou in view of Aikawa discloses wherein the curved reflecting surface is between one of the two contact portions and the other of the two contact portions. **(Aikawa: Col.6 Lines 1-10, Fig. 7 shows clearly that the curved reflecting mirrors are in between the supporting structures)**

Claim 14, Mou discloses an image reading apparatus **(Fig. 2 el. 2 shows a scanner)** for reading an image of a document, **(Col. 2 Lines 48-52- thus the casing is located in the scanner 2 which scans images put on glass window 21) comprising:**

an image reading unit **(Fig. 2 El. 22 or Carriage 22)** configured to read the image of the document **(Col. 2 lines 53-60- thus the casing which contains the light source reads the image by passing light through the image)**

an illuminating unit **(Light source 222 shown in Fig. 2)** configured to illuminate the document. **(Column 2 Lines 49-56 – thus the light source produces light which passes through the image).**

a mirror (**Fig. 2 El. 223**) configured to reflect and guide light from the document to said image reading unit, (**Col. 2 Lines 54-65-thus these mirrors are made to reflect the lights from the document**)

said mirror including a reflecting mirror surface (**Col. 2 lines 53-62- thus Mirror 223 reflects the first light ray that comes from the paper**) and

a housing (**Casing 221 shown in fig. 2**) configured to support said mirror, said housing including a portion, (**Col. 3 Lines 8-15, Fig. 2 El. 221-thus the casing is put in place to support the mirrors and therefore the casing (housing) has a supporting part that hold both the mirror and the casing or housing together**)

wherein said mirror comprises a protuberance (**Fig. 2 El. 225 shows a projecting portion of the mirror which is used to project light ray "A" to be light ray "B"**) being disposed at a position corresponding to a reference axis of the reflecting mirror surface, (**Col. 2 Lines 53-62- Fig. 2, El. 225 and 224- thus the angle between mirrors 225 and 224 forms a reference axis as it can be seen clearly from fig. 2**)

wherein the protuberance of said mirror is inserted in the portion of the housing. (**Col. 3 lines 20-31- thus the mirror is inserted in the recess 2291 and a hook 2292 and this will engage the mirrors in place during scanning**)

Mou does not disclose a curved reflecting surface.

Aikawa disclose a curved reflecting surface (Col. 6 Lines 1-9 and lines 31-41 Fig. 8C - thus the mirrors are hold in position by base plate 75 as taught by Aikawa in Col. 6 Lines 25-34). Since Aikawa teaches a plurality of curved mirrors used as reflective

surface for optical purpose and therefore it will be obvious to one ordinary skilled in the art at the time the invention was made to modify Mou scanning structure to include a curved reflective surface so that the light obtained will be uniform as disclosed by Aikawa in Col. 3 Lines 30-32 and also the modification of Mou's scanning device to include Aikawa's 73 a-e mirrors will improve the readings of the scanning and thus the scanner will output a better image.

Claim 15, Mou in view of Aikawa discloses wherein the protuberance of said mirror is disposed at a center of said mirror in a longitudinal direction thereof. **(Mou: fig. 2 shows that when light ray A hits mirror 223 from document on the platen, the center of mirror 223 reflects the light ray to mirror 224 and therefore it is at the center of mirror 223)**

Claim 16, Mou in view of Aikawa discloses wherein said mirror is fixed on said housing by a pressure force of a blade spring. **(Mou: Col. 3 lines16-33- thus the hook and recess can be used as a spring) and (Aikawa: Col. 6 lines 34-55- thus the adhered (spring) is used to put both the mirror and the housing together)**

Claim 17, Mou in view of Aikawa discloses wherein said mirror is bonded to said housing. **(Mou: Col. 3 lines16-33- thus the hook and recess can be used as a spring) (Aikawa: Col. 6 lines 34-41- thus the screw or adhered is used to put both the mirror and the housing together).**

Claim 18, Mou in view of Aikawa discloses wherein said mirrors is screwed to said housing. **(Aikawa: Col. 6 lines 34-41- thus the screw or adhered is used to put both the mirror and the housing together)**

Claim 19, Mou in view of Aikawa discloses wherein the scanner further comprising a scanning unit configured to move said housing to perform scanning of the image of the document, **(Mou: Col. 2 Lines 48-56- thus the casing moves beneath the platen during scanning)**

and wherein said housing further supports said image reading unit and said illumination unit. **(Mou: Col. 3 Lines 8-15, Fig. 2 El. 221-thus the casing is put in place to support the mirrors and therefore the casing (housing) has a supporting part that hold both the mirror and the casing or housing together)**

Claim 20, Mou in view of Aikawa discloses wherein said housing includes a mirror supporting part, **(Mou: Col. 3 Lines 15 and 32 -thus mirror 223 is supported by the hooks and the recesses and therefore hold the mirrors in place during scanning)** wherein said mirror further comprises contact portions on both sides of the curved reflecting mirror surface, **(Mou: Col. 3 lines 27-32- thus the hooks and the recesses hold mirror 223 in place by holding the mirror in both sides)**

said contact portions being disposed on a side of the mirror on which the curved reflecting mirror surface is disposed, and wherein the contact portions of said mirror contact the mirror supporting part of the housing. **(Mou: fig. 2 shows clearly that as carriage 22 moves to scan the document mirror 223 receives light from the image document which is in normal direction to the paper 23)**

NB: Col. 2 lines 48-67- thus the light reflected from the document is normal to the first mirror which is mirror 223 and according to fig. 5 mirror 223 is engaged in hooks 2292 and recesses 2291.

Claim 21, Mou in view of Aikawa discloses wherein the curved reflecting surface and the contact portions of said mirror are formed integrally. (Mou: Fig. 2 shows clearly that the mirrors (223-226228 and 224 are made together with the casing 22).

Claim 22, Mou discloses an image reading apparatus (Fig. 2 el. 2 shows a scanner) for reading an image of a document (Col. 2 Lines 48-52- thus the casing is located in the scanner 2 which scans images put on glass window 21) comprising:
an image reading unit **(Fig. 2 El. 22 or Carriage 22)** configured to read the image of the document; an illuminating unit configured to illuminate the document. **(Col. 2 lines 53-60- thus the casing which contains the light source reads the image by passing light through the image).**

a mirror **(Fig. 2 El. 223, 224,225 and 226 are all mirrors)** configured to reflect and guide light from the document to said image reading unit, **(Col. 2 Lines 54-65-thus these mirrors are made to reflect the lights from the document).**

said mirror including a curved reflecting mirror surface; and
a housing **(Casing 221 shown in fig. 2)** configured to support said mirror, said housing including a concave portion, wherein said mirror comprises a protuberance being disposed at a position corresponding to a center of the curved reflecting mirror surface,

and **(fig. 2 shows clearly that as carriage 22 moves to scan the document mirror 223 receives light from the image document which is in normal direction to the paper 23)**

NB: Col. 2 lines 48-67- thus the light reflected from the document is normal to the first mirror which is mirror 223 and according to fig. 5 mirror 223 is engaged in hooks 2292 and recesses 2291.

Mou does not disclose a curved reflecting surface.

Aikawa disclose a curved reflecting surface **(Col. 6 Lines 1-9 and lines 31-41 Fig. 8C - thus the mirrors are hold in position by base plate 75 as taught by Aikawa in Col. 6 Lines 25-34) and a protuberance (Fig. 10 shows clearly that all the mirrors (73e, 73d, 73a, 75a, 75 when together bend outwardly and therefore forms a protuberance) being disposed at a position corresponding to a reference axis of the curved reflecting mirror surface (Col. 7 lines 55-67- thus since the toric mirror 91 which form a bend shape also creates or forms a reference axis) wherein the protuberance of said mirror is inserted in a concave portion of the housing. (Fig. 10 shows that mirrors 73a-c forms a concave portion within the housing)**

Since Aikawa teaches a plurality of curved mirrors used as reflective surface for optical purpose and therefore it will be obvious to one ordinary skilled in the art at the time the invention was made to modify Mou scanning structure to include a curved reflective surface so that the light obtained will be uniform as disclosed by Aikawa in Col. 3 Lines 30-32 and also the modification of Mou's scanning device to include

Aikawa's 73 a-e mirrors will improve the readings of the scanning and thus the scanner will output a better image.

Response to Arguments:

Applicant's arguments filed 03/26/2009 have been fully considered but they are not persuasive.

Regarding Claim 1 applicant argues that the cited references fails to teach or suggest a protuberance being disposed at a position corresponding to a reference axis of the curved reflecting mirror surface, wherein the protuberance of the mirror is inserted in a concave portion of the housing, as recited by amended Claim 1.

In reply, Examiner respectfully disagree because Aikawa discloses a protuberance (**Fig. 10 shows clearly that all the mirrors (73e, 73d, 73a, 75a, 75 when together bend outwardly and therefore forms a protuberance)** being disposed at a position corresponding to a reference axis of the curved reflecting mirror surface (**Col. 7 lines 55-67- thus since the toric mirror 91 which form a bend shape also creates or forms a reference axis)** wherein the protuberance of said mirror is inserted in a concave portion of the housing. (**Fig. 10 shows that mirrors 73a-c forms a concave portion within the housing)**

Again applicant argues that the cited reference fails to teach or disclose that contact a mirror supporting part of a housing supporting the mirror.

In reply, examiner respectfully disagrees because Mou teaches or discloses contact a mirror supporting part (**fig. 5- thus the hooks and the recess supports and contact the mirrors**) of a housing supporting the mirror. (**Col. 3 lines 20-25- thus the mirror is engaged into the hooks and the recess 2291 and 2292 respectively and therefore it is contacting and supporting the mirror**) .

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to AKWASI M. SARPONG whose telephone number is (571)270-3438. The examiner can normally be reached on Monday-Friday 8:00am-5:00pm est.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, King Poon can be reached on 571-272-7440. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/King Y. Poon/
Supervisory Patent Examiner, Art Unit 2625

AMS
07/02/2009

